Displacement sensor Control unit

UQ 1 series

UQ1-02

Instruction manual

- Thank you for purchasing UQ1 series. We hope you are satisfied with its performance.
- Carefully read this manual and keep it for future reference.

Related manuals

Carefully read "SAFETY PRECAUTIONS" on the user's manual of the base unit.

Please read following chapter on the user's manual of the base unit and understand well before using.

- SAFETY PRECAUTIONS
- CONDITION OF USE FOR THE PRODUCT
- EMC AND LOW VOLTAGE DIRECTIVES

You can download the manual of this product from our homepage.
Please use the product understanding its features and functions well.

Safety precautions

Please read following precautions that are its own and not included in the user's manual of the base unit before using.

【Design precautions】

Warning!

- Please don't overwrite on the shared memory and the reserved area of [Y] device. It may cause malfunction.
- Please don't power off or reset sequencer CPU while "BUSY" signal of [X] device is activated. In this case, please execute procedure again after powering off and powering on of the CPU.

【Wiring precautions】

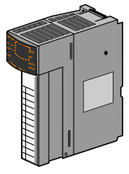
Warning!

- Please proceed wiring while power is off.
- Please make sure that the connectors are installed correctly.
- Please make sure that the cables that connect CD33 series are installed in the duct or fixed by clamp. Loosen cables may cause malfunction of the system and/or breakage of the unit and cables.
- Please remove cables after loosening screws of the terminal. Pulling the cables without loosening screws may cause malfunction of the system and/or breakage of the unit and cables.

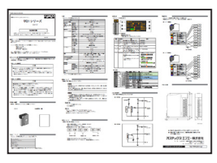
Checking goods bundled with the unit

Please confirm following goods are bundled with the unit in the box.

・UQ1-02



・Instruction Manual
（This sheet）



Applicable Sequencer

Following CPU Units are usable for UQ1 Series.

Basic model QCPU
High Performance model QCPU
Process QCPU
Redundant CPU (*)
Universal model QCPU
Remote I/O Station

*It can't be installed to Main base unit and it can't be replaced while power is ON.

Specifications

Model		UQ1-02
Sampling speed		500 μ s~
Number of occupied I/O points		32 points per slot (I/O assignment: Intelli: 32 points)
Communication method (with next unit)		Infrared communication
Terminal	Applicable wire size	Core wire:0.3 ～ 0.75mm² (maximum outer diameter: 2.8mm)
	Applicable terminal size	R1.25-3 (*)
Communication 2 (with CD33)	Number of unit	2 sensor heads maximum
	Method	RS-422
	Baud rate	256kbps
Control output	Mode	NPN open collector
	Output voltage	DC12-24V (± 10%)
	Output current	80mA (DC12-24V)
	Residual voltage	1.0V maximum
	Leak current	0.2mA maximum
	Protection	Over current protection circuit
Trigger input	Logic	ON by connected to GND (0V)
	ON voltage level	1.0V maximum
	OFF voltage level	2.0V minimum
	Input impedance	Approximately 10k Ω
Function		Setup of sensor head, Control output, Calculation, Hold, Filter, Bank, Storage
EEPROM programming cycle limit		1000 k times minimum
Power consumption of internal 5V		0.5A maximum
Noise tolerance		500Vp-p , 1 μ s by noise simulator 1kV / IEC61000-4-4
Insulation resistance		10M Ω minimum
Protection category		IP2X
Operating temperature/humidity		-10 ～ +55℃ / 35% ～ 85%RH (without condensation)
Storage temperature/humidity		-20 ～ +70℃ / 35% ～ 85%RH (without condensation)
Vibration tolerance		10 ～ 55Hz / 1.5mm / X,Y,Z / 2hours
Dimensions		98(H) × 27.4(W) × 90(D) [mm]
Weight		Approximately 150g

*** Please use solderlesss terminal without sleeve.**
*** Cables for connector type CD33 are available; DOL-1208-G02M/5M (2m/5m)**

Wiring

Proceed wiring according to following procedure.

Warning 1

To prevent electric shock and damaging unit, please disconnect every power line before proceed wiring.
Set the terminal cover over the terminal before power on to prevent electric shock.

Warning 2

To prevent noise interference, install communication cables keeping away from other cables like power line and load line.
Make sure the shield line is earthed at sequencer side as one point earthing separating from other earth point of power line.

Wiring procedure:

- Power off the sequencer
- Wire CD33

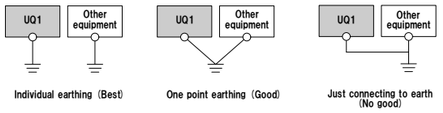
Terminal

- Size of screws used for UQ1 terminal is M3.
- Please use solderless terminal as shown on the specification chart.
- Tightening torque: 0.5~0.8Nm

Earthing

Please proceed earthing regarding following procedure.

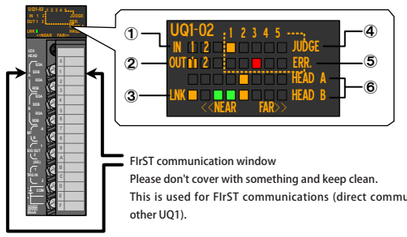
- **Please earth with earthing resistance of 100 Ω or less.**
- **Please earth this unit individually.**
  If you couldn't earth the unit individually, please earth at one point with other equipment.



- Please use the wire bigger than AWG14(2mm²)
- Please wire the earthing wire as closer as possible to the sequencer in a way as shorter as possible.

Display/Terminal

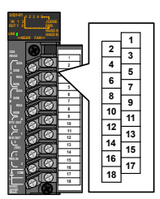
Following shows about display and terminals.



FIrST communication window
Please don't cover with something and keep clean.
This is used for FIrST communications (direct communication with other UQ1).

No.	Item	Function	Display
①	IN1/2	**Status of Trigger input 1/2**	Orange: ON
②	OUT1/2	**Status of Signal output 1/2**	Orange: ON
③	LNK	Status of FIrST communication (direct communication).	Orange: Active
④	JUDGE	**Status of control output Q1~Q5 (ON when X0B~X0F = 0)**	Orange: ON
⑤	ERR	**When error is in setup of Q1~Q5,it is ON. To reset it, please** repower or set Error reset (Y16).	Red: ON (Error)
⑥	HEAD A/B	Indicate measurement distance of each sensor head by LEDs. When the distance is out of range,all LEDs blink. Please read user's manual for details.	<1> Center of range (center ± 10%) <2>While measurement LEDs are lit according to the distance. <3>Out of range (all LEDs blink) <4>Laser OFF (Orange LED blinks)

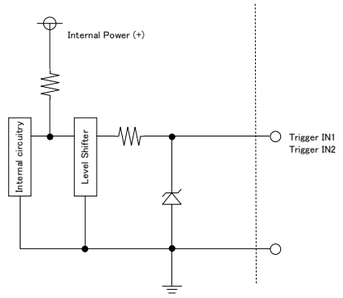
【Terminal】



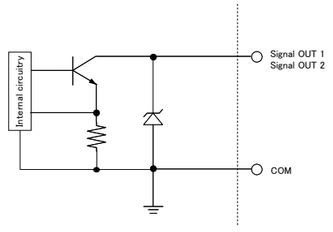
Terminal No.		Terminal name	Functions	Note
1		[Head A] SDA	Head A send +	Please wire RS422 lines of head A. Please wire GND to S.G.
2		[Head A] SDB	Head A send −	
3		[Head A] RDA	Head A recieve +	
4		[Head A] RDB	Head A recieve −	
5		[Head B] SDA	Head B send +	Please wire RS422 lines of head B. Please wire GND to S.G.
6		[Head B] SDB	Head B send −	
7		[Head B] RDA	Head B recieve +	
8		[Head B] RDB	Head B recieve−	
9		MF A	MF A	Please wire MF lines of each head
10		MF B	MF B	
11		Signal Out 1	Result output 1	
12		Signal Out 2	Result output 2	
13		S.G.	Signal ground	Please wire ground.
14		Trigger In 1	Trigger input 1	
15		Trigger In 2	Trigger input 2	
16		COM(SG)	I/O common ground	Ground of Sync out,Signal out, Trigger In and power.
17		12~24V	I/O power (+)	Please wire + of Power supply.
18		12~24V	I/O power (+)	No.17 and 18 are connected inside.

Input/Output Schematic

■ Input schematic



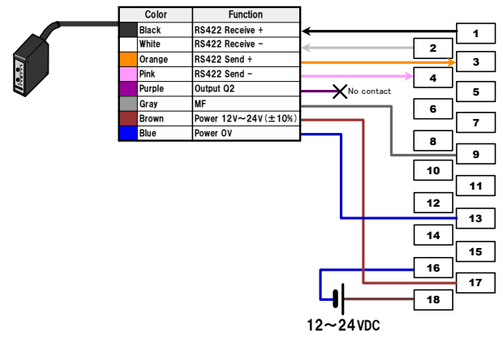
■ Output schematic



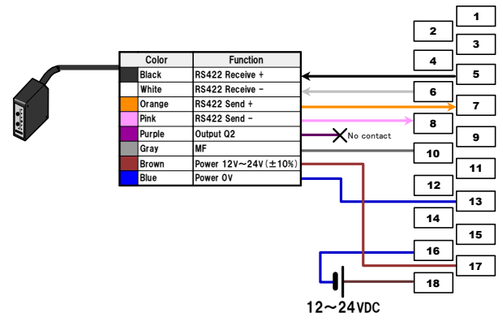
Connection of CD33

Following shows how to wire CD33 series sensor head.

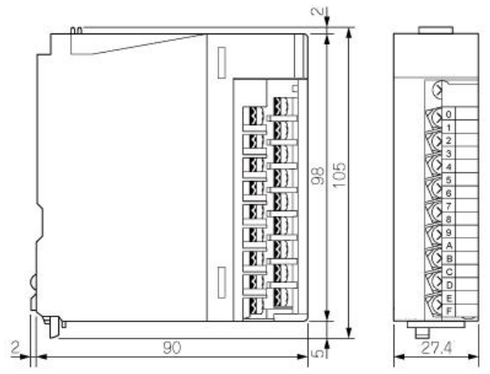
■ Sensor head A



■ Sensor head B



Dimensions



Unit:mm

- Specifications are subject to change without notice.
- Please contact following when you had any problems and questions regarding to this product.

OPTEX FA CO., LTD.
600-8815 Kyoto, Shimogyo, Chudoji Awata 91, Japan
TEL. +81-(0)75-325-2920 FAX. +81-(0)75-325-2921
http://www.optex-fa.com